

VLA Observations of Saturn's Rings at Saturnian Equinox

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Detailed, high resolution observations of Saturn's rings have previously been made at 2 and 6 cm wavelength and at a ring inclination angle of 25° by A. W. Grossman, D. O. Muhleman, & G. L. Berge (1989, *Science*, **245**, 1211). We have observed Saturn during the Saturnian equinox at 0.7, 2.0, 3.6, & 6 cm wavelength and at a ring inclination angle of 2.7° . This angle is unusually high for a Saturnian equinox, and therefore favorable for detection. We plan to observe Saturn next January when the ring inclination angle will again be similar, but the solar angle will be 6° in order to empirically distinguish between effects due to scattering and those due to variations in ring particle temperature.

We present the brightness temperature (T_B) as a function of ring azimuth and of ring component (A, B, C rings and Cassini Division). As expected the average T_B 's have changed since the observation of Grossman, Muhleman, & Berge (1989). We also find unanticipated east-west asymmetries in some portions of the rings.

We interpret the changed T_B 's in terms of the varying projected optical depths. We consider asymmetric multiple scattering by particles clustered in tilted wakes (e.g., H. Salo 1995, *Icarus*, **117**, 287) as an origin of the east-west asymmetry.

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